



Agenda

- Bridge history
- Current bridge condition
- Resident engagement results
- Options and estimated costs
- Staff recommendation / discussion

Prior to 1965 (1939 aerial photo)



Present Day



Bridge History – Original Construction

- Original construction completed in 1965 with the widening, realignment, and lowering of West Dorothy Lane
- City of Oakwood contributed \$20,000 to the project, since part of the bridge was within Oakwood right-of-way at that time
- 1963 Ordinance specified that Kettering would assume all future ownership & maintenance of the bridge
 - Mutual Ordinances by Oakwood & Kettering constituted a contract between the cities
 - Any change to the 1963 Ordinance would require mutual consent by both Councils

Bridge History – 2005 Rehabilitation

- Replaced 6 exterior beams on center span
(All other existing beams were not replaced)
- New asphalt surface with waterproofing membrane
- New parapet walls, sidewalks, & railings on top of bridge
- Epoxy sealing of entire bridge
- Spot surface patching of support piers
- \$500,000 project

Current Bridge Condition

- 50 year expected service life (currently 52 years old)
- Currently rated a 4 out of 9 on the Bridge Condition Index
 - “Structurally Deficient” based on June 2017 inspection report
- Design of the bridge lends itself to leakage & concrete deterioration
- Continued water leakage and chlorides from road salt will result in continued deterioration of beams and support columns
- Currently no vehicle load restrictions, but likely in the future
- Further rehabilitations similar to 2005 would not be cost effective, due to the design of the bridge and the condition of the support piers

Current Bridge Condition

- Beams
 - Minor to moderate leakage throughout
 - Delamination, cracking, spalling, exposed steel reinforcement in many beams
 - Two beams sagging on north span
- Abutments
 - Moderate leakage; horizontal, vertical, & map cracking; and delamination & spalling in both abutments
- Concrete piers
 - Pier caps have extensive cracking, with staining & efflorescence present due to water & chloride leakage
 - Apparent delamination of previous patch work
 - Pier columns have extensive spalling, longitudinal, & stress cracking that will lead to further delamination and concrete falling off the columns as deterioration continues









Traffic Counts

- 24-hour weeklong vehicular traffic counts (cars/trucks) conducted in July 2016 and May 2017
 - July 19-27, 2016 traffic volume: 897 vehicles/day (average)
 - May 10-17, 2017 traffic volume: 928 vehicles/day (average)
- 13-hour (7am – 8pm) daily pedestrian and bicycle traffic counts conducted in October 2017
 - Counts conducted with a temporary video camera mounted on an adjacent utility pole south of the bridge

Date	Saturday 10/14	Sunday 10/15	Monday 10/16	Tuesday 10/17	Wednesday 10/18	Thursday 10/19	Friday 10/20	Saturday 10/21	Sunday 10/22	Monday 10/23
Weather	High 81° Mostly Sunny	High 75° PM Showers	High 61° Mostly Sunny	High 65° Mostly Sunny	High 69° Mostly Sunny	High 73° Mostly Sunny	High 76° Mostly Sunny	High 74° Mostly Sunny	High 77° Mostly Sunny	High 65° Rain
Pedestrians	189	127	128	114	100	115	90	258	174	30
Bicycles	42	14	15	27	19	22	21	33	40	3

Bridge Concept Drawings



> City of Kettering - Ridgeway Road Bridge Concept
PRESTRESSED CONCRETE BRIDGE



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> City of Kettering - Ridgeway Road Bridge Concept
TRUSS BRIDGE



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> City of Kettering - Ridgeway Road Bridge Concept
ELIMINATED BRIDGE



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Resident Engagement Results

- “Virtual Public Meeting” format on City website
 - Video explaining the project
 - Online survey for feedback
 - Direct mailing to over 1,000 Kettering residents and over 300 Oakwood residents in vicinity of the bridge
 - Social Media reach & Cox Media coverage
- 800+ responses, plus additional emails and phone calls received
 - Kettering responses: 480+ inside mailing area; 200+ outside
 - Oakwood responses: 80+ inside mailing area; 30+ outside
 - 440+ “additional comments” submitted, as well as several emails received after the survey closed

Survey Results

- Two-thirds (2/3) of survey respondents drive and/or walk over the bridge at least weekly
- Majority of survey respondents use the bridge for vehicular travel
- Reasons for using the bridge were evenly split, with travel to/from Hills & Dales MetroPark, travel within neighborhoods, and recreational purposes (walking/biking) being the leading uses.
- Bridge replacement or removal question results:
 - Replace current bridge with a new bridge for ALL modes of traffic: 72% in favor
 - Replace current bridge with a new bridge for ONLY pedestrians & bicyclists: 19% in favor
 - Remove the bridge and NOT replace it: 7% in favor
 - Not sure/neutral: 2%
- Some themes of the “additional comments” included concerns about safely crossing Dorothy Lane, added traffic to adjacent side streets, and access to Hills & Dales MetroPark for residents south of Dorothy Lane

	Replace with a new bridge for ALL modes of traffic	Replace with a new bridge for ONLY pedestrians and bicyclists	Remove and NOT replace	Not sure / Neutral
Kettering				
Inside mailing area	81%	12%	5%	2%
Outside mailing area	56%	28%	13%	3%
Oakwood				
Inside mailing area	67%	28%	4%	1%
Outside mailing area	58%	39%	3%	0%

Options and Estimated Costs

Option A: Do nothing, leave current bridge as-is

- No capital improvement costs planned, other than as-needed maintenance
- Likely need for a concrete patching project in the relatively near future
- Deterioration will continue due to water leakage and freeze/thaw cycle
- Potential for vehicle load restrictions in the near future
- Eventual (longer-term) need to close the bridge to vehicular traffic
- This option is not recommended by staff or by our bridge inspection consultant

Option B: Remove the bridge completely and NOT replace

- Estimated cost: \$250,000 (construction cost; design in-house)
- No available grant funding sources
- Would require a cul-de-sac on the north side for vehicular turnaround
- Lowering Ridgeway to create an at-grade intersection with Dorothy is cost-prohibitive
- City outlay: \$250,000 (construction)

Options and Estimated Costs

Option C: Replace with a new bridge for ONLY pedestrians & bicyclists

- Estimated cost: \$750,000 - \$850,000 (design, right-of-way, construction)
- Potential grant funding sources:
 - MVRPC Transportation Alternatives (TA) Program
 - Grant funding up to 80% of construction costs, capped at \$350,000
 - Bridge must carry only pedestrians & bicyclists to be eligible for funding
 - Applications due in October annually; award notifications in January
 - Funds available in 2024 (subject to Federal transportation legislation)
 - MVRPC Congestion Mitigation / Air Quality (CMAQ) Program
 - Grant funding up to 80% of construction costs, not capped
 - Funding applications are competitive at the state-wide level, less of a guarantee to obtain funds compared to other programs
 - Funds available in 2024/2025 (subject to Federal transportation legislation)
- Example funding scenarios (worst case cost, best case funding)
 - Total estimated cost: \$850,000
(\$750,000 construction; \$80,000 design; \$20,000 right-of-way)
 - MVRPC TA Grant: \$350,000 MVRPC CMAQ Grant (60%): \$450,000
 - City TA outlay: \$500,000 City CMAQ outlay: \$400,000

Options and Estimated Costs

Option D: Replace with a new bridge for ALL modes of traffic (vehicles, pedestrians, bicyclists)

- Estimated cost: \$1.5 - \$2 million (design, right-of-way, and construction)
 - Potential grant funding sources:
 - ODOT Municipal Bridge Program
 - Grant funding up to 80% of construction costs, possibly up to 95% depending on availability of ODOT funds (ODOT determines funding level)
 - Bridge must carry vehicles to be eligible for funding under this program
 - Applications due March 1 annually; award notifications in June
 - Funds available in 2021 – 2023
 - Ohio Public Works Commission (OPWC)
 - Grant and/or loan funding available to offset local match
- Example funding scenario (worst case cost, best case funding)
 - Total estimated cost: \$2,000,000
((\$1,800,000 construction; \$180,000 design; \$20,000 right-of-way)
 - ODOT Municipal Bridge grant: \$1,710,000 (95% of construction cost)
 - OPWC grant funding: \$200,000 (\$90,000 construction; \$110,000 design)
 - City outlay: \$90,000 (\$70,000 design; \$20,000 right-of-way)

Low vehicular traffic volume may be detrimental to Ridgeway being funded under this scenario

Staff Recommendation

Apply to the ODOT Municipal Bridge Program in March 2018 for a replacement bridge for all modes of traffic (vehicles, pedestrians, and bicyclists)

- Funding awards announced in June 2018, for construction in 2021 – 2023

If Municipal Bridge funding is successful, apply for OPWC funds at the appropriate funding cycle time to offset local match costs

If Municipal Bridge funding is not successful, regroup and decide how to proceed

- Apply for MVRPC TA & CMAQ funds later in 2018?
- Remove bridge and not replace?

Resident Survey feedback and bridge condition data will be essential to various grant applications

The bridge's condition is a medium-range (5-10 year) concern, therefore we have time to properly investigate and attempt to obtain outside funding sources